

REMARKS

By this Preliminary Amendment, Applicants have amended the claims of the application to overcome the references that have been relied upon by the Examiner, namely the Parady patent or the Joy patent, taken alone or in combination with up to four other references selected from the article to Kruse et al or the patents to Flynn, Lee et al, Anderson et al and Cutler et al. Applicants submit that the examiner should allow the claims still in the application.

Claims 2, 11 and 12 were objected to because of certain informalities. Claims 2 and 12 have now been canceled, and claim 11 has been amended to overcome the objection.

In the final rejection, the examiner contends that claims 11-16 and 19-23 are anticipated by the teachings of the Parady patent, U.S. 5,933,627. Applicants respectfully submit that the Parady patent fails to show the following features of claim 11 as now amended.

a) The patent describes the use of multiple threads to access data. However, the patent does not appear to teach or suggest queuing the threads to have overlapping access to the accessible data. Although the examiner refers to Fig. 3, he states that “.. when threads are switched, they have overlapping access to data....” Yet, applicants cannot understand how the examiner reached this conclusion based on the text of the patent. If the Examiner persists with this rejection, clarification is requested.

Claims 12 and 14 have now been folded into claim 11. These two dependent claims had specified the two events that are to be considered in dealing with an execution interrupt. The examiner had taken exception to the terms to ‘short latency event’ and ‘long latency

event'. Applicants refer to page 4 of their specification wherein the duration of a 'short' event is one of 25 machine cycles or less, whereas a 'long' event is over 25 cycles. The precise dividing line between the two events is not as significant as the method of dealing in a different manner with each event. Furthermore, Parady does not recognize the occurrence of the two different events (long latency vs. short latency) or the method of dealing with each of them in a different manner. As stated by the examiner on page 4 of the final office action, Parady has further taught that the thread execution control includes control logic for temporarily transferring the control to the next thread when execution stalls due to a short latency event, and for returning control to an original thread when the latency event is completed." Then, three lines later, he reiterates "...control will eventually be transferred back to the first thread." Thus, Parady is talking about latency events wherein the control is returned to the first thread under all circumstances whereas in claim 11, applicants clearly point out that long latency events cause full control to be passed onto and retained by the next thread. Accordingly, claim 11 as now amended shows that control does not necessarily return to the first thread.

Furthermore, the applicants have amended claim 11 to explicitly state that control is returned to the first thread immediately upon completion of a short latency event.

Although the examiner refers to a cache miss as a short latency event, it should be noted that Parady teaches a cache miss as a long latency event (see Abstract).

Applicants further point out that in Parady, the multiple threads are pieces of the same program rather than independent processes. Yet, in claim 11, applicants specifically refer to the multiple instruction execution threads as independent processes in a sequential time frame.

Applicants respectfully submit that claim 11 as now presented clearly distinguishes over the cited and applied Parady patent. Claims 12 and 14 have been canceled. With claim 11 containing allowable subject matter, claims 13 and 15-23, all depending from claim 11, should be considered allowable as well.

Applicants respectfully submit that Parady does not meet all of the limitations of the newly worded independent claim 11 and, consequently, does not anticipate claims 13 and 15-23 that depend from claim 11. Accordingly, allowance of these claims is appropriate.

The final rejection of claims 1-6, 9-10 and 32-33 as unpatentable over Parady in view of the 1999 article by Kruse et al under 35 U.S. C. 103(a) is respectfully traversed. Again, as stated previously in connection with the patentability of claim 11, applicants have included the subject matter of claims 2 and 4 into claim 1 to encompass the additional step of either returning control when the stall is due to a short event or keeping control if the event is long. This limitation then serves to clearly distinguish over Parady. The debate over short versus long event is irrelevant to the teachings of the present invention because Parady does not draw any distinction between the operation of his system for a short event or for a long event. Furthermore, it is important to note that Parady does not specify that providing multiple instruction execution threads represents independent processes as indicated by the examiner. Instead, these processes are interrelated. This is because they are pieces of the same program and are not independent. Applicants, in their March 9, 2005 amendment, had previously presented compelling arguments showing a failure to suggest a motivation to combine these references. One of the distinguishing features of claim 1 as now amended is that full control is passed to the subsequent thread in the case of a long event. Thus, applicants' invention does not contemplate the return of control to the first thread in situations in which the stall is a

long event. Therefore, the very argument used by the examiner in the final rejection distinguishes the claimed invention from the teachings of Parady. Applicants respectfully submit that the knowledge of the invention, when viewed from the standpoint of one of ordinary skill in the art with knowledge, when no prior art reference or references of record convey or suggest that knowledge, is to rely on hindsight.

The weight of the evidence clearly points to features in claim 1 that patentably distinguish over the prior art. Accordingly, claim 1 should be allowed. Claims 3 and 5-10 that depend from claim 1 provide further limitations on the scope of coverage and should likewise be reconsidered and allowed. Claims 32 and 33 have now been amended to depend from claim 1 rather than from claims 2 and 4, and should also be considered allowable for the same reasons as claim 1.

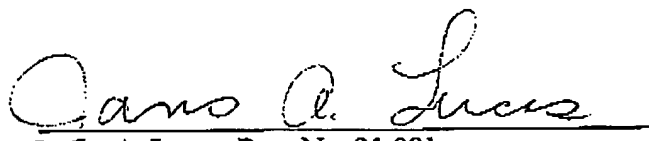
All of the canceled claims are canceled without prejudice.

CONCLUSION

All of the claims as now worded are clearly patentable over the prior art previously cited and applied and should be allowed.

Respectfully submitted,

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James A. Lucas, Reg. No. 21,081
CUSTOMER NO. 26675

JAL:cg